

Appendix M: Forming a Budget

How much do you need to spend on your road? For many roads the answer to this question is- "more." If a gravel road is not maintained at a level that allows it to hold up to the forces of vehicle traffic and weather the road will degrade to the point where fixing it properly will be very expensive. Akin to the maintenance of an automobile there are two options; 1) spend a little money periodically to repair your "old beater" and run it into the ground, or 2) spend a moderate amount of money periodically on a car payment for a car that will be cheaper to maintain. Option one may be cheaper but you don't have as nice a car as in option two. Now in this car scenario both options have their benefits, but in the case of your road the "old beater" approach results in a dangerous, rough, road that is polluting our environment. Maintenance to your road needs to be done every year. This means that a moderate amount of money needs to be spent every year.

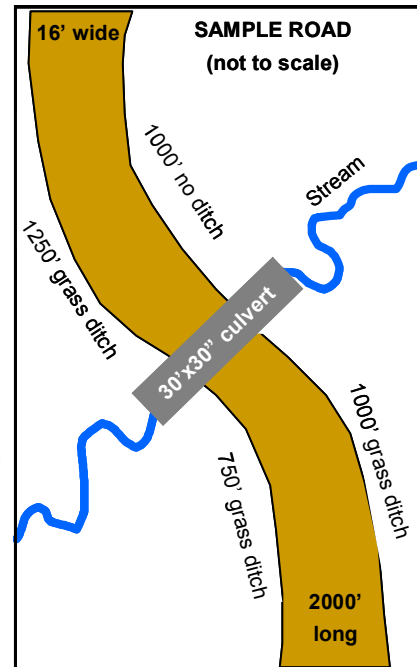
How do you figure out what the "moderate" amount of money is for you road?
Here's an example:

Sample road:

Is 2000' long and 16' wide
Has a total of 3000' of ditches
One 30'x30" culvert
Is a year-round gravel road

To determine yearly maintenance cost we need to look at the different components of gravel road maintenance: road surface, ditches, culverts, and snow removal.

Road Surface Maintenance: You may have noticed that your gravel road surface is not static. Its shape is constantly changing due to a variety of forces: vehicle traffic, erosion, snowplows, dusting, etc. Gravel road surfaces change shape due to the "loss of material." Essentially road surface material is lost in one of four ways: through dusting, by sinking into the ground, by raveling (material is kicked off of the road by vehicles), or through erosion. As a result the road surface needs to be reshaped periodically in order for it to efficiently shed water into the road ditches; this is accomplished using some sort of road grading equipment to recover some of the material that has been "lost" to the road shoulder.



Unfortunately, this can only recover a portion of the road surface material that has been lost. This means that every year you are losing a certain amount of road surface material. Therefore to maintain the road surface you not only need to reshape the road surface periodically to recover as much "lost" material as possible, you need to periodically add road surface material. For a year round road, grading should be done twice per year – preferably once after the snow melt and before the spring rains and once before the fall rains. Adding road surface material should be done when there is not enough material to form a sufficient crown.

Sample road

Grading: Road grader at \$65/hr for 6 hrs: **\$390.00**

Surface Material: Let's assume this road needs about 6" of gravel every four

years. Rather than wait four years and add gravel to the entire road, add gravel to a different 500' section every year.

500' long x 16' wide x 0.5' gravel/27= about 150 cu.yds.

150 cu.yds x \$17/cu.yd for surface gravel delivered= **\$2550.00**

Annual Total: \$2940.00

Ditches: Ditches need to be maintained or cleaned out periodically because "lost" road surface material often ends up in the ditch. Periodic road surface grading will help minimize the filling of the ditches but the ditches still need to be "cleaned out" on occasion. There are many factors that influence the frequency that ditches need to be cleaned out including; the size of the original ditch, the frequency that the road surface is graded, and soil type to name a few.

Sample road

Ditching: Let's assume that the ditches need to be cleaned out every 7 years. The contractor has given a quote of \$2000.00 for a day's worth of ditching, and figures that he or she can do about 1000 feet.

\$6000.00 worth of ditching every ten years

Annual Total: \$600.00

Culvert(s): Culverts need to be replaced when they deteriorate, have been damaged or wash away. Depending on the type of material, they will last anywhere from 15 to 50 years (some times even longer). Corrugated metal pipe deteriorates most quickly while concrete and plastic pipes tend to last much longer.

Sample road

Culvert: Assume the culvert will need to be replaced every 25 years

30' x 30" Plastic Culvert = \$725.00 *

Installation costs: \$ 750.00

Total cost: \$1475.00 / 25 years

Annual Total: \$59.00

** Culvert diameter may change as the developed area changes. More development may result in increased surface water runoff which in turn will require a larger culvert to accommodate this additional flow.*

Snow removal: This includes snow removal and sanding.

Sample road

Snow removal:

Annual Total: \$1500.00

Sample Road Annual Expenses:

Road Surface:	\$2940.00
Ditches:	\$600.00
Culverts:	\$59.00
Snow Removal:	\$1500.00
Grand Total:	\$5099.00 / year

Maintenance for your road may be more or less than this example. Keep in mind this budget only includes maintenance and assumes that your road is in decent shape to begin with. It is possible that a considerable expense is necessary to get your road to the point where the above maintenance budget example would apply.

This section was provided by the Kennebec County Soil and Water Conservation District.